

What is claimed is:

- 1 1. A method of operation within a database system, the method comprising:
 - 2 receiving a request to execute a query;
 - 3 determining that a collection of data elements to be returned by the query
 - 4 corresponds to a first data structure not defined within a type dictionary of the
 - 5 database system;
 - 6 obtaining attribute values that describe respective data fields within the first data
 - 7 structure; and
 - 8 recording, within the type dictionary, a first data type definition that specifies the
 - 9 data fields described by the attribute values.
- 1 2. The method of claim 1 further comprising recording, within the type dictionary, a
- 2 second data type definition that defines an array of the first data type.
- 1 3. The method of claim 1 wherein obtaining attribute values that describe respective
- 2 data fields within the first data structure comprises querying a data source to obtain
- 3 the attribute values.
- 1 4. The method of claim 3 wherein querying the data source to obtain the attribute
- 2 values comprises communicating with a remote processing system via a network of
- 3 one or more computer systems.
- 1 5. The method of claim 1 wherein the first data structure includes rows and columns
- 2 of data values, and wherein obtaining attribute values that describe respective data
- 3 fields within the first data structure comprises obtaining a list of column names and
- 4 column types.

- 1 6. The method of claim 1 further comprising determining whether any of the attribute
- 2 values describes a data field having a plurality of component data fields.

- 1 7. The method of claim 6 further comprising obtaining attribute values that describe
- 2 the plurality of component data fields.

- 1 8. The method of claim 1 wherein recording a first data type definition comprises:
- 2 generating a data type name;
- 3 associating the data type name with names of the data fields; and
- 4 recording the data type name and the names of the data fields in the type dictionary.

- 1 9. The method of claim 8 wherein generating the data type name comprises
- 2 incrementing an identifier value associated with a previously generated name, the
- 3 incremented identifier value constituting, at least in part, the data type name.

- 1 10. The method of claim 8 wherein the names of the data fields are included in the
- 2 attribute values and wherein associating the data type name with the names of the
- 3 data fields comprises specifying the names of the data fields as component data
- 4 elements of the first data type definition.

- 1 11. The method of claim 1 further comprising:
- 2 executing the query; and
- 3 automatically deleting the first data type definition after the query has been
- 4 executed.

- 1 12. The method of claim 11 wherein automatically deleting the first data type definition

2 after the query has been executed comprises deleting the first data type definition in
3 response to completing execution of the query.

1 13. The method of claim 11 wherein recording the first data type definition comprises
2 recording a query duration type indicator, the query duration type indicator
3 indicating that the first data type definition is to be deleted from the type dictionary
4 after the query has been executed.

1 14. The method of claim 13 wherein automatically deleting the first data type definition
2 after the query has been executed comprises:
3 scanning the type dictionary to identify data type definitions that include a query
4 duration type indicator;
5 determining, for each data type definition that includes a query duration type
6 indicator, whether execution of a query to which the data type definition
7 corresponds is complete; and
8 deleting, from the type dictionary, each data type definition for which execution of
9 the corresponding query is complete.

1 15. The method of claim 1 wherein receiving a request to execute a query comprises
2 receiving a request to execute a function that returns a collection of aggregate data
3 values.

1 16. The method of claim 1 wherein determining that a collection of data elements to be
2 returned by the query corresponds to a first data structure not defined within a type
3 dictionary of the database system comprises determining that a predetermined
4 return type is indicated by the query.

1 17. The method of claim 16 wherein the predetermined return type corresponds to an
2 array of aggregate values and indicates that each of the aggregate values includes
3 component values in accordance with the first data structure.

1 18. A database system comprising:
2 a processing entity; and
3 a memory coupled to the processing entity and having a dictionary of data type
4 definitions stored therein, and further having program code stored therein
5 which, when executed by the processing entity, causes the processing entity
6 to:
7 receive a request to execute a query;
8 determine that a collection of data elements to be returned by the query
9 corresponds to a first data structure not defined within the dictionary of
10 data type definitions;
11 obtain attribute values that describe respective data fields within the first data
12 structure; and
13 record, within the dictionary of data type definitions, a first data type
14 definition that specifies the data fields described by the attribute values.

1 19. The system of claim 18 wherein the processing entity comprises a plurality of
2 processors coupled to one another in a network.

1 20. The system of claim 19 wherein the memory comprises a plurality of sets of storage
2 devices, each set of storage devices being coupled to at least one of the processors
3 and including at least one non-volatile storage device.

- 1 21. A computer-readable medium carrying one or more sequences of instructions
- 2 which, when executed by one or more processors, causes the one or more
- 3 processors to:
- 4 receive a request to execute a query;
- 5 determine that a collection of data elements to be returned by the query corresponds
- 6 to a first data structure not defined within a dictionary of data type definitions;
- 7 obtain attribute values that describe respective data fields within the first data
- 8 structure; and
- 9 record, within the dictionary of data type definitions, a first data type definition that
- 10 specifies the data fields described by the attribute values.